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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,725	01/17/2002	Ajay Chandra V. Gummalla	1875.0690001	3369

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EXAMINER	
NGO, NGUYEN HOANG	
ART UNIT	PAPER NUMBER
2663	

DATE MAILED: 11/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/046,725	GUMMALLA ET AL.	
	Examiner	Art Unit	
	Nguyen Ngo	2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 January 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6,8-19,21 and 23-33* is/are rejected.

7)☒ Claim(s) *5,7,20 and 22* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1, 2, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bushmitch et al. (US 6950399), hereinafter referred to as Bushmitch.

Regarding claim 1, Bushmitch discloses a method of decomposing a stream of data packets to be transmitted from a remote terminal through upstream channel into constant bit rate portions, in which the constant bit-rate portion is transmitted in a periodically allocated grant (a method for guaranteeing a delay jitter bound when scheduling transmission opportunities to constant bit rate data applications (constant bit-rate portion) via a communication medium (channel), col2 lines 12-25). Bushmitch further discloses;

of having the tolerated grant jitter be set to half the nominal grant interval (determining the delay jitter bound (tolerated grant jitter, col5 lines 35-37) and is further seen that from figure 4, that the tolerated grant jitter be 10 msec.

that unsolicited grant service (UGS) class are defined to support constant bit rate (CBR) transmissions over the upstream channel and that periodic data transmissions opportunities are allocated to this service flow (col5 lines 9-12) and is further seen from figure 4 that each map interval (phases) is allocated periodically with a grant size (MM#)(assigning a constant bit rate data application (grant size) to one of said phases (map interval), col5 lines 24-25) and further discloses transmitting the constant bit-rate packet portion in response to a periodically allocated grant (assigning CBR data to one of said phases and scheduling a transmission opportunity to said CBR data application, col9 lines 25-26).

of having the time-slot intervals which are also called transmission opportunities (col3 lines 60-61) correlate to grant sizes that are allocated as seen in figure 4. The Examiner interprets the grant size allocations (MM#) to correlate to scheduling transmission opportunities to said constant bit rate data application during an assigned phase (map interval).

Bushmitch however fails to specifically disclose the limitation of dividing a packetization frame period into one or more phases based on said determined delay jitter bound. Bushmitch however discloses that the QoS parameters defined are the grant size to be allocated periodically (MM#), the nominal grant interval, designated "T",

between successive grants, and the tolerated grant jitter (col5 lines 24-27) and it is further seen that this parameters define the map intervals and it boundaries of a time period (dividing a packetization frame period into one or more phases (map intervals)) based on QoS parameters (tolerated grant jitter (delay jitter bound)). It should thus be obvious that the time axis as disclose by Bushmitch correlate to a packeterization frame period, as a frame period is simply a period of time.

Regarding claim 2, Bushmitch discloses that the transmission opportunity be a allocated grant size (MM#)(transmission opportunity is a bandwidth grant, col5 lines 24-26) and further discloses data applications include VoIP for IP telephony service (CBR application is a voice call, col1 lines 26-28).

Regarding claim 16, Bushmitch discloses a system of decomposing a stream of data packets to be transmitted from a remote terminal through upstream channel into constant bit rate portions, in which the constant bit-rate portion is transmitted in a periodically allocated grant (a system for guaranteeing a delay jitter bound when scheduling transmission opportunities to constant bit rate data applications (constant bit-rate portion) via a communication medium (channel), col2 lines 12-25). Bushmitch further discloses;

upstream service scheduling class parameters assigned by an upstream classifier and that upstream scheduling define specific bandwidth and latency guarantees that are adhered to by the CMTS upstream bandwidth scheduler (a

scheduler, wherein said scheduler determines; col4 lines 51-56). Examiner interprets the classifier to correlate to the scheduler and it is further obvious that this classifier (scheduler) determines the delay jitter bound and performs the following functions of assigning and scheduling, as discussed below.

of having the tolerated grant jitter be set to half the nominal grant interval (determining the delay jitter bound (tolerated grant jitter, col5 lines 35-37) and is further seen that from figure 4, that the tolerated grant jitter be 10 msec which would have been obvious to be determined by the classifier as the classifier allocates upstream bandwidth for a particular service flow based on the parameters (jitter bound) and service specifications of the corresponding service scheduling class (col4 lines 56-59).

that unsolicited grant service (UGS) class are defined to support constant bit rate (CBR) transmissions over the upstream channel and that periodic data transmissions opportunities are allocated to this service flow (col5 lines 9-12) and is further seen from figure 4 that each map interval (phases) is allocated periodically with a grant size (MM#)(assigning a constant bit rate data application (grant size) to one of said phases (map interval), col5 lines 24-25) and further discloses transmitting the constant bit-rate packet portion in response to a periodically allocated grant (assigning CBR data to one of said phases and scheduling a transmission opportunity to said CBR data application, col9 lines 25-26).

of having the time-slot intervals which are also called transmission opportunities (col3 lines 60-61) correlate to grant sizes that are allocated as seen in figure 4. The Examiner interprets the grant size allocations (MM#) to correlate to scheduling

transmission opportunities to said constant bit rate data application during an assigned phase (map interval).

Bushmitch however fails to specifically disclose the limitation of dividing a packetization frame period into one or more phases based on said determined delay jitter bound. Bushmitch however discloses that the QoS parameters defined are the grant size to be allocated periodically (MM#), the nominal grant interval, designated "T", between successive grants, and the tolerated grant jitter (col5 lines 24-27) and it is further seen that this parameters define the map intervals and it boundaries of a time period (dividing a packetization frame period into one or more phases (map intervals)) based on QoS parameters (tolerated grant jitter (delay jitter bound)). It should thus be obvious that the time axis as disclose by Bushmitch correlate to a packeterization frame period, as a frame period is simply a period of time.

Regarding claim 17, Bushmitch discloses that the transmission opportunity be a allocated grant size (MM#)(transmission opportunity is a bandwidth grant, col5 lines 24-26) and further discloses data applications include VoIP for IP telephony service (CBR application is a voice call, col1 lines 26-28).

4. Claims 3, 4, 6, 8, 14, 15, 18, 19, 21, 23, 30, 31, 32, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bushmitch et al. (US 6950399) in view of Chapman et al. (US 6621812), hereinafter referred to as Bushmitch and Chapman.

Regarding claim 3 and 18, Bushmitch fails to disclose the specific limitation of determining whether the voice call is active. Bushmitch however discloses of periodically allocating grant sizes, which is dynamically adjusted for improving channel allocation based on two predetermined thresholds (col2 lines 28-35), thus providing the motivation to efficiently us the resources of the communication medium such as bandwidth.

Chapman further discloses a method and system for mapping voice activity detection to a scheduled access media and further discloses that voice activity detection (VAD) is a voice processing technique to reduce bandwidth usage and that with VAD, a transmitting CODEC sends audio samples only when audio signals are above a set audio threshold (determining whether said voice call is active, col1 lines 29-31) and that audio data is transferred in the cable modem network by scheduling unsolicited grants (granting bandwidth to said voice calls only when said voice calls is active, figure 6 and col4 lines 39-41). It would thus be obvious to a person skilled in the art to incorporate the method and system of mapping voice activity detection to a scheduled access media as disclosed by Chapman into the method and system of decomposing a stream of data packets to be transmitted from a remote terminal through upstream channel into constant bit rate portions as disclosed by Bushmitch in order to efficiently use the bandwidth of the communication medium.

Regarding claim 4 and 19, the combination of Bushmitch and Chapman discloses all the limitations of claim 4 and 19, more specifically, Chapman discloses the receiving CODEC compensates for the silence interval by inserting silence or comfort noise equal to the perceived background of the conversation (step of granting bandwidth to non-voice data (comfort noise) according to a fragmentation policy, col1 lines 35-37).

Regarding claim 6 and 21, the combination of Bushmitch and Chapman discloses all the limitations of claim 6 and 21, more specifically, Bushmitch discloses from figure 4 that the UGS grant (voice grant) of each map interval may start at any location within the interval (fragmentation policy is a floating region boundaries and minimized fragmentation policy where some flexibility on where the voice grant regions may start, figure 4).

Regarding claim 8 and 33, the combination of Bushmitch and Chapman discloses all the limitations of claim 8 and 33, more specifically, Chapman discloses of transmitting CODEC sends audio samples only when audio signals are above a set audio threshold (grant bandwidth to said voice call, col1 lines 29-31) and that audio data is transferred in the cable modem network by scheduling unsolicited grants (figure 6 and col4 lines 39-41) and inserting silence noise equal to the perceived background noise of the conversion (grant bandwidth to non-voice data, col1 35-40). It would further be obvious to a person skilled in the art to have these voice call and non-voice data be in adjacent

phases of said one or more phases as this is simply a system parameter that is used when there is silence in a conversation.

Regarding claim 14 and 23, the combination of Bushmitch and Chapman discloses all the limitations of claim 14 and 23, more specifically Bushmitch discloses of UGPRS grant intervals as seen in figure 7. Examiner interprets these grant intervals to be sub-phases of the said phases.

Regarding claim 15, 31, and 32, the combination of Bushmitch and Chapman discloses all the limitations of claim 15, 31, and 32,more specifically, Chapman discloses of jitter buffers that buffers data (a dejitter buffer for delaying the transmission of a packet to an external system to ensure a zero delay jitter bound, col3 lines 20-24). It is well known in the art that these jitter buffers delay the transmission of data in order to reduce jitter (delaying (by way of jitter buffer) the transmission of said bandwidth grant to ensure a zero delay jitter bound). Chapman further discloses that the network be a packet network as seen in figure 1, and further discloses voice data stream is transmitted over a packet network such as Voice over Internet Protocol (external system is the Internet, col1 lines 15-19).

Regarding claim 30, the combination of Bushmitch and Chapman discloses all the limitations of claim 30, more specifically, Chapman discloses of a system for communication real time audio over a packet-switched data network (col1 lines 9-13)

and further discloses that the processing node allocates unsolicited grants (through scheduler) at a selected time interval for scheduling transmission of audio packets and switches from allocating unsolicited grants to providing a polling request when VAD at a transmitting endpoint (scheduler is applied in a switch implementation, col1 lines 55-59).

5. Claims 9-13 and 24-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bushmitch et al. (US 6950399) in view of Eng (US 5963557), hereinafter referred to as Bushmitch and Eng.

Regarding claims 9-13 and 24-28, Bushmitch fails to specifically disclose the limitation of what the communication medium might be. Bushmitch does disclose that the communication medium be a cable network (figure 1) and thus provide the motivation that any medium may be used for the transmission of data. Eng further discloses that a network may be a wireless network, a satellite network (col8 lines 1-4), a fiber optic network (col20 lines 41-45) and the Internet (communication medium is a cable network, wireless network, Internet, satellite network, or a fiber optic network, col1 lines 44-46). It should thus be obvious that the network may be any one of the mentioned networks as described by Eng.

6. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bushmitch et al. (US 6950399) in view of Tikekar et al. (US 6665708), hereinafter referred to as Bushmitch and Tikekar.

Regarding claim 29, Bushmitch fails to disclose the specific limitation of having the scheduler be implemented as a priority first-come first-served scheduler. Bushmitch however discloses that the CMTS allocates upstream bandwidth for a particular upstream service flow based on the parameters and service specification of the corresponding service scheduling class (col4 lines 56-59) and thus provides the motivation to efficiently prioritize a data flow of a specific data.

Tikekar further discloses that data are generally queued in the scheduler, and carried out in a first come first served manner (the scheduler is implemented as a priority first-come first-served scheduler, col3 lines 49-51). It would thus be obvious to a person skilled in the art to incorporate the first-come first-served scheduler as disclosed by Tikekar into the system of decomposing a stream of data packets to be transmitted from a remote terminal through upstream channel into constant bit rate portions as disclosed by Bushmitch, in order to efficiently prioritize the different data packets.

Allowable Subject Matter

7. Claims 5, 7, 20, and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Larsson et al. (US 6490254), Packet Loss Tolerant Reshaping Method.

b) Lin et al. (US 5966163), Providing Constant Bit Rate Upstream Data Transport In a Two Way Cable System By Scheduling Preemptive Grants For Upstream Data Slots Using Selected Fields Of A Plurality Of Grant Fields.

c) Lide (US 6181716), Synchronization of Voice Packet Generation Of Unsolicited Grants IN a DOCSIS Cable Modem Voice Over Packet Telephone.

d) Le et al. (US 6882625), Method For Scheduling Packetized Data Traffic.

e) Fichou et al. (US 6072773), Flow Control For Very Bursty Connections In High Speed Cell Switching Networks.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nguyen Ngo whose telephone number is (571) 272-8398. The examiner can normally be reached on Monday-Friday 7am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

N.N.
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